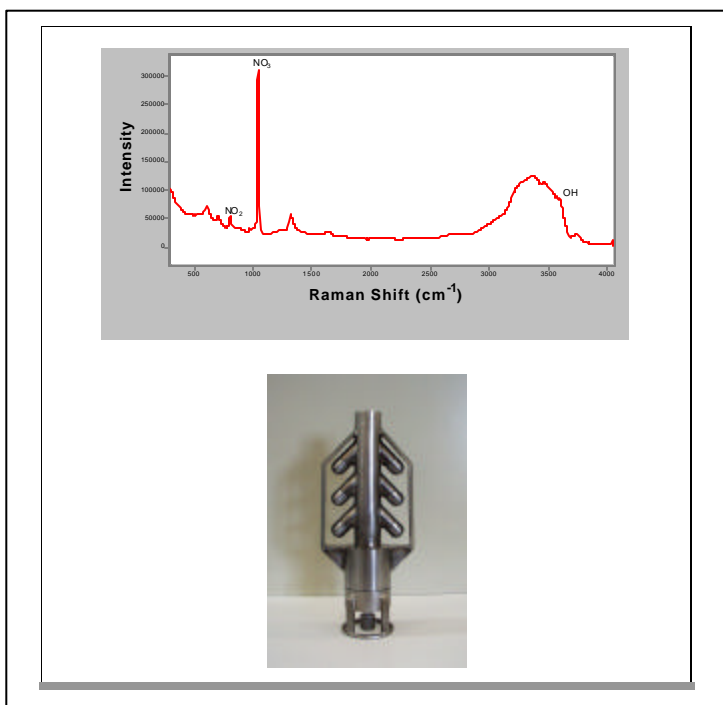


## Integrated Raman Sensor for In-Tank Corrosion Chemistry Monitoring (TechID 2015)

This technology utilizes a portable Raman spectrometer with fiber-optic sensors to produce an instrument that can detect and measure hydroxide, nitrate, and nitrite *in situ* over the full range of concentrations of significance to DOE. The Raman spectrometer is integrated with an electrochemical noise corrosion monitor (TechID 1985). The integrated instrument can be operated remotely with only a small lightweight probe and fiber-optic cable that is deployed robotically in the waste tank. The instrument can differentiate easily between dissolved and solid materials, which is important in tank waste monitoring where the physical composition can range from liquid to sludge to hard saltcake. No sample preparation is required. The Raman sensor can monitor other ions and organic constituents of interest, and also can be used in characterizing the contents of drums, bottles, and other containers slated for treatment and disposal.



### Developers:

- EIC Laboratories, Inc., Norwood MA

### Applications:

- DOE High-Level Waste Tank corrosion chemistry monitoring
- DOE Tank Safety Maintenance Program

### Benefits:

- *In situ* real-time analyses reduce costs and worker exposure
- Reduced turn-around time allows more frequent monitoring

### Status:

- Feasibility study in March 1998; engineering design review stage
- Technology demonstration in hot cells at SRS in September 1999; deployment in preparation
- Innovative Technology Summary Report in preparation
- Available from InPhotonics ([www.inphotonics.com](http://www.inphotonics.com))